

CLAIMS

1. A power-supply unit comprising:

a main power-supply circuit and a secondary power-supply circuit,
both connected to an alternating current power supply; and

an input current control circuit contained in the main power-supply circuit,

wherein the input current control circuit controls an input current to the main power-supply circuit so that harmonic current may be suppressed in a current of the summation of the input current to the main power-supply circuit and an input current to the secondary power-supply circuit.

2. A power-supply unit comprising:

a main power-supply circuit and a secondary power-supply circuit,
both connected to an alternating current power supply; and

an input current control circuit contained in the main power-supply circuit,

wherein the input current control circuit controls an input current to the main power-supply circuit so that a current of the summation of the input current to the main power-supply circuit and an input current to the secondary power-supply circuit may be substantially proportional to an input voltage to the input current control circuit.

3. A power-supply unit comprising:

a main power-supply circuit and a secondary power-supply circuit,
both connected to an alternating current power supply;

an input current control circuit contained in the main power-supply circuit; and

circuit current detection means contained in the input current control circuit,

wherein a current of the summation of an input current to the main

power-supply circuit and an input current to the secondary power-supply circuit flows in the circuit current detection means, and

wherein the input current control circuit controls the input current to the main power-supply circuit so that harmonic current may be suppressed in the current flowing in the circuit current detection means.

4. A power-supply unit comprising:

a main power-supply circuit and a secondary power-supply circuit, both connected to an alternating current power supply;

an input current control circuit contained in the main power-supply circuit; and

circuit current detection means contained in the input current control circuit,

wherein a current of the summation of an input current to the main power-supply circuit and an input current to the secondary power-supply circuit flows in the circuit current detection means, and

wherein the input current control circuit controls the input current to the main power-supply circuit so that the current flowing in the circuit current detection means may be substantially proportional to an input voltage to the input current control circuit.

5. A power-supply unit as claimed in claim 3 or 4, further comprising:

a first rectifying circuit connected between the alternating current power supply and the input current control circuit, the first rectifying circuit contained in the main power-supply circuit;

a second rectifying circuit connected to the alternating current power supply, the second rectifying circuit contained in the secondary power-supply circuit; and

a smoothing circuit connected to the output of the second rectifying circuit, the smoothing circuit contained in the second power-supply circuit.

6. A power-supply unit as claimed in claim 5, further comprising:
a switch connected between the alternating current power supply and the first rectifying circuit.

7. A power-supply unit as claimed in claim 3 or 4, further comprising:

a first rectifying circuit connected between the alternating current power supply and the input current control circuit, the first rectifying circuit contained in the main power-supply circuit;

a reverse-current prevention diode connected to the output of the first rectifying circuit, the reverse-current prevention diode contained in the secondary power-supply circuit; and

a smoothing circuit connected to the output of the reverse-current prevention diode, the smoothing circuit contained in the secondary power-supply circuit.

8. A power-supply unit as claimed in any one of claims 3 to 7, wherein the input current control circuit is a boost converter.

9. A power-supply unit as claimed in claim 8, wherein the boost converter contains an inductance element one terminal of which is connected to one output terminal of the first rectifying circuit, a diode connected between the other terminal of the inductance element and an output terminal of the main power-supply circuit, a switch element connected between the other terminal of the inductance element and the other output terminal of the first rectifying circuit, and a smoothing capacitor connected between an output terminal of the main power-supply circuit and the other output terminal of the first rectifying circuit.

10. A power-supply unit as claimed in any one of claims 3 to 7, wherein the input current control circuit is a flyback converter.

11. A power-supply unit as claimed in claim 10, wherein the flyback converter contains a transformer in which one terminal of a primary winding is connected to one output terminal of the first rectifying

circuit, a switch element connected between the other terminal of the primary winding and the other terminal of the first rectifying circuit, a diode connected between one terminal of a secondary winding of the transformer and an output terminal of the main power-supply circuit, and a smoothing capacitor connected between an output terminal of the main power-supply circuit and the other terminal of the secondary winding.